oxygen gas;

13 nitrogen gas; and

average room temperature humidity.

Remarks

Examiner Pompey is thanked for the thorough Office Action.

In the Claims

Independent claim 1 and claims 3 to 5 depending therefrom have been cancelled without prejudice.

Independent claim 6 has been amended in a manner believed to overcome the 35 U.S.C. §112, first paragraph, rejection to claims 6 and 8 to 10, and to correct antecedent basis issues at lines 8 and 13. Claim 6 has been further amended to specify that the oxidization of the silicon structure further at the second temperature that is no greater than 1100°C occurs after the oxidization of the silicon structure further at the first temperature that is greater than 1100°C.

Claim 10 has been amended to correct an informality and in a manner not narrowing the scope of the claim.

Claims 11 to 14 are new and have been added to better encompass the full scope and breadth of the invention notwithstanding the patentability of the original claims and roughly correspond to claims 6 and 8 to 10, respectively.

Claim Rejections

The Rejection of Claims 1 To 10 (sic) Under 35 U.S.C. §112, First Paragraph, as Containing Subject Matter Which Was Not Described in the Specification in Such a Way as to Reasonably Convey to One Skilled in The Relevant Art That the Inventor(s), at the Time the Application was Filed, had Possession of the Claimed Invention

The rejection of claims 1 to 10 (sic) under 35 U.S.C. §112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention is acknowledged.

Claims 1, 3 to 6 and 8 to 10 are pending in the instant application. Claims 1 and 3 to 5 have been cancelled and claim 6 has been amended in a manner believed to overcome the 35 U.S.C. §112, first paragraph, rejection to claims 6 and 8 to 10.

The Rejection Of Claims 1, 2 And 4 (sic) Under 35 U.S.C. §102(b) As Anticipated By Liu et al. (U.S. Patent No. 5,739,063)

The rejection of claims 1, 2 and 4 (sic) under 35 U.S.C. §102(b) as anticipated by Liu et al. (U.S. Patent No. 5,739,063) (the '063 Liu Patent) is acknowledged.

Claim 2 has been previously withdrawn and claims 1 and 4 have been cancelled without prejudice to moot this rejection.

The Rejection Of Claims 3, 5, 6 And 8 To 10 Under 35 U.S.C. §103(a) as Being Unpatentable Over Higashitani et al. (U.S. Patent No. 5,637,528)

The rejection of claims 3, 5, 6 and 8 to 10 under 35 U.S.C. §103(a) as being unpatentable over Higashitani et al. (U.S. Patent No. 5,637,528) (the '528 Higashitani Patent) is acknowledged.

Applicants' wish to briefly point up the claimed features of their invention which are believed to be not shown nor obvious from the teachings of known references in this field. Pending independent claims 6 and 11 both clearly define locally oxidizing a silicon (semiconductor) substrate through a patterned silicon nitride mask layer at a first temperature above 1100°C to form FOX isolation layers which prevent out-gassing of nitrogen species from the silicon nitride mask and then oxidizing the

silicon (semiconductor) substrate further at a second temperature no greater than 1100°C.

The '528 Higashitani Patent on the other hand discloses (as shown in Fig. 2A for example) an oxidation process at about 1000°C followed by another oxidation process at about 1125°C which does not render the claimed limitations of the instant invention of employing a first oxidation process at least above (about) 1100°C followed by a second oxidation process no greater than (about) 1100°C..

Thus independent claims 6 and 11 distinguish over Higashitani under §103(a) for the above reasoning and further because, inter alia: the prior art lack a suggestion that the reference should be modified in a manner required to meet the claims; the invention is contrary to the teaching of the prior art—that is, the invention goes against the grain of what the prior art teaches; the Examiner has not presented a convincing line of reasoning as to why the claimed subject matter as a whole, including its differences over the prior art, would have been obvious; and Higashitani teaches away.

Claims 8 to 10 depend from independent claim 6; and claims 12 to 14 depend from independent claim 11; and are believed to distinguish over the combination for the reasons previously cited.

Therefore claims 6 and 8 to 14 are submitted to be allowable over the cited references and reconsideration and allowance are respectfully solicited.

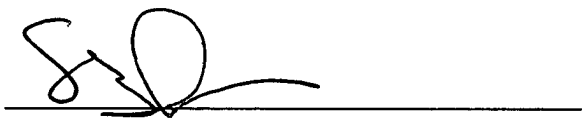
CONCLUSION

In conclusion, reconsideration and withdrawal of the rejections are respectively requested. Allowance of all claims is requested. Issuance of the application is requested.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned **"Version with markings to show changes made."**

It is requested that the Examiner issue only written Office Actions and requirements in the instant application.

Respectively submitted,



Stephen B. Ackerman

Reg. No. 37,761

Version with markings to show changes made.

Please amend the claims as follows:

6. (Fifth Amendment) A method for forming within a silicon semiconductor substrate employed within an integrated circuit microelectronics fabrication a silicon oxide dielectric field oxide (FOX) isolation layer comprising:

providing a silicon semiconductor substrate;

forming upon the silicon semiconductor substrate a silicon oxide pad oxide layer;

forming upon the silicon oxide pad oxide layer a patterned silicon nitride mask layer;

oxidizing the silicon semiconductor substrate locally at a first temperature of at least above 1100 degrees centigrade, through the patterned silicon nitride mask layer to form silicon oxide dielectric field oxide (FOX) isolation layers which prevent out-diffusion of nitrogen species from the silicon nitride mask layer[, thereby minimizing formation of silicon oxynitride inclusions within the silicon oxide layers]; and

then oxidizing the silicon semiconductor substrate further at a second temperature no greater than 1100 degrees centigrade as desired to form greater thickness of silicon oxide layers.

10. (Amended) The method of claim 11, wherein the dry oxidizing environment comprises:

oxygen gas;

nitrogen gas; and

average room temperature humidity.

Please add claims 11 to 14 as follows:

-- 11. A method for forming a silicon oxide dielectric field oxide (FOX) isolation layer comprising:

providing a silicon structure;

forming upon the silicon structure a pad oxide layer;

forming upon the pad oxide layer a patterned silicon nitride mask layer;

oxidizing the silicon structure locally at a first temperature of at least above about 1100°C, through the patterned silicon nitride mask layer to form silicon oxide dielectric field oxide (FOX) isolation layers which prevent out-diffusion of nitrogen species from the silicon nitride mask layer; and

then oxidizing the silicon structure further at a second temperature no greater than about 1100°C to form greater thickness of silicon oxide layers.

12. The method of claim 11, wherein the pad oxide layer is formed employing thermal oxidation of the silicon structure in an oxidizing environment.

13. The method of claim 11, wherein the silicon structure is a single crystalline silicon wafer of (100) crystal orientation.

14. The method of claim 11, wherein the dry oxidizing environment comprises:

oxygen gas;

nitrogen gas; and

average room temperature humidity. --